

***In the Claims:***

Please amend the claims as follows.

The following lists all claims and their status:

1-155 (cancelled)

156. (currently amended): A system configured to design cardiac instruments, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:  
~~provide to a computer system one or more images of heart tissue from a human heart; and~~  
create a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one image of heart tissue from a human heart.

157. (currently amended): A carrier medium configured to store program instructions, wherein the program instructions are executable to implement a method to design cardiac instruments, comprising:

~~providing one or more images of heart tissue from a human heart to a computer system; and~~

creating a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one image of heart tissue from a human heart.

158-494 (cancelled)

495. (new): The system of claim 156, wherein the pattern is created automatically by at least one of the computer programs based on at least some user input.

496. (new): The system of claim 495, wherein one or more computer programs are further executable to divide at least one image into a plurality of sections.

497. (new): The system of claim 156, wherein the image comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

498. (new): The system of claim 156, wherein at least one of the implants comprises a reinforcing device.

499. (new): The system of claim 498, wherein the reinforcing device comprises a patch.

500. (new): The system of claim 156, wherein at least one of the implants comprises an annuloplasty ring.

501. (new): The system of claim 156, wherein at least one of the implants comprises a suture.

502. (new): The system of claim 156, wherein at least one of the implants comprises a valve.

503. (new): The system of claim 156, wherein at least one of the instruments comprises a shaper.

504. (new): The system of claim 503, wherein the shaper is configurable to expand to a predetermined shape and size.

505. (new): The system of claim 503, wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

506. (new): The system of claim 503, wherein the shaper comprises a balloon.

507. (new): The system of claim 156, wherein at least one of the instruments comprises a guide.

508. (new): The system of claim 507, wherein the guide comprises an overlay.

509. (new): The system of claim 507, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

510. (new): The system of claim 156, wherein one or more computer programs are further executable to extrapolate at least a portion of at least one feature from at least one image of human heart tissue.

511. (new): The system of claim 510, wherein at least one of the features comprises an image.

512. (new): The system of claim 510, wherein at least one of the features comprises at least a portion of an image.

513. (new): The system of claim 510, wherein at least one of the features comprises a numerical feature.

514. (new): The system of claim 156, wherein one or more computer programs are further executable to:

use at least two images of human heart tissue to create at least a second image of the heart tissue, wherein at least a portion of the second image appears three-dimensional.

515. (new): The system of claim 156, wherein one or more computer programs are further executable to:

use a plurality of image to create at least a second image of the heart tissue,  
wherein at least a portion of the second image appears four-dimensional.

516. (new): The system of claim 515, wherein one of the dimensions comprises time.

517. (new): The system of claim 515, wherein at least one of the dimensions comprises at least one physiological factor.

518. (new): The system of claim 517, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

519. (new): The system of claim 156, wherein one or more computer programs are further executable to create at least one image of the pattern of at least a portion of at least one cardiac instrument using at least one image.

520. (new): The system of claim 519, wherein at least one portion of at least one image of the pattern appears at least three-dimensional.

521. (new): The system of claim 156, wherein one or more computer programs are further executable to extrapolate at least one portion of at least one feature of the pattern from at least two images.

522. (new): The system of claim 521, wherein at least one of the features comprises an image.

523. (new): The system of claim 521, wherein at least one of the features comprises at least a portion of an image.

524. (new): The system of claim 521, wherein at least one of the features comprises a numerical feature.

525. (new): The system of claim 156, wherein at least one of the computer programs is further executable to assess a volume of at least a portion of the heart tissue.

526. (new): The system of claim 156, wherein at least one of the computer programs is further executable to:

- compare a contrast between two or more sections in at least one image; and
- assess a viability of the heart tissue.

527. (new): The system of claim 156, wherein at least one of the computer programs is further executable to:

- evaluate motion of at least one portion of at least one feature of one or more images of heart tissue; and
- assess asynergy of the heart tissue.

528. (new): The system of claim 156, wherein at least one of the computer programs is further executable to:

- evaluate a curvature of at least a section of a portion of a heart comprising the heart tissue; and
- assess a shape of at least the portion of the heart.

529. (new): The system of claim 156, wherein at least one of the computer programs is further executable to:

- assign at least one reference point to at least two images of the heart tissue;
- evaluate a relative movement of at least one of the reference points between at least two images of the heart tissue; and
- assess a viability of the heart tissue.

530. (new): The system of claim 156, wherein at least one of the computer programs is further executable to:

- determine at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and

assess a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.

531. (new): The carrier medium of claim 157, wherein the pattern is created automatically by at least some of the program instructions based on at least some user input.

532. (new): The carrier medium of claim 531, wherein the program instructions are further executable to implement a method comprising dividing at least one image into a plurality of sections.

533. (new): The carrier medium of claim 157, wherein the image comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

534. (new): The carrier medium of claim 157, wherein at least one of the implants comprises a reinforcing device.

535. (new): The carrier medium of claim 534, wherein the reinforcing device comprises a patch.

536. (new): The carrier medium of claim 157, wherein at least one of the implants comprises an annuloplasty ring.

537. (new): The carrier medium of claim 157, wherein at least one of the implants comprises a suture.

538. (new): The carrier medium of claim 157, wherein at least one of the implants comprises a valve.

539. (new): The carrier medium of claim 157, wherein at least one of the instruments comprises a shaper.

540. (new): The carrier medium of claim 539, wherein the shaper is configurable to expand to a predetermined shape and size.

541. (new): The carrier medium of claim 539, wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

542. (new): The carrier medium of claim 539, wherein the shaper comprises a balloon.

543. (new): The carrier medium of claim 157, wherein at least one of the instruments comprises a guide.

544. (new): The carrier medium of claim 543, wherein the guide comprises an overlay.

545. (new): The carrier medium of claim 543, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

546. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement a method comprising:  
extrapolating at least a portion of at least one feature from at least one image of human heart tissue.

547. (new): The carrier medium of claim 546, wherein at least one of the features comprises an image.

548. (new): The carrier medium of claim 546, wherein at least one of the features comprises at least a portion of an image.

549. (new): The carrier medium of claim 546, wherein at least one of the features comprises a numerical feature.

550. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement a method comprising:

using at least two images of human heart tissue to create at least a second image of the heart tissue, wherein at least a portion of the second image appears three-dimensional.

551. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement a method comprising:

using a plurality of image to create at least a second image of the heart tissue, wherein at least a portion of the second image appears four-dimensional.

552. (new): The carrier medium of claim 551, wherein one of the dimensions comprises time.

553. (new): The carrier medium of claim 551, wherein at least one of the dimensions comprises at least one physiological factor.

554. (new): The carrier medium of claim 553, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

555. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement a method comprising:

creating at least one image of the pattern of at least a portion of at least one cardiac instrument using at least one image.

556. (new): The carrier medium of claim 555, wherein at least one portion of at least one image of the pattern appears at least three-dimensional.



557. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement a method comprising extrapolating at least one portion of at least one feature of the pattern from at least two images.

558. (new): The carrier medium of claim 557, wherein at least one of the features comprises an image.

559. (new): The carrier medium of claim 557, wherein at least one of the features comprises at least a portion of an image.

560. (new): The carrier medium of claim 557, wherein at least one of the features comprises a numerical feature.

561. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement:

assessing a volume of at least a portion of the heart tissue.

562. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement:

comparing a contrast between two or more sections in at least one image; and  
assessing a viability of the heart tissue.

563. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement:

evaluating motion of at least one portion of at least one feature of one or more images of heart tissue; and  
assessing asynergy of the heart tissue.

564. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement:

evaluating a curvature of at least a section of a portion of a heart comprising the heart tissue; and

assessing a shape of at least the portion of the heart.

565. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement:

assigning at least one reference point to at least two images of the heart tissue;

evaluating a relative movement of at least one of the reference points between at least two images of the heart tissue; and

assessing a viability of the heart tissue.

566. (new): The carrier medium of claim 157, wherein the program instructions are further executable to implement:

determining at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and

assessing a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.